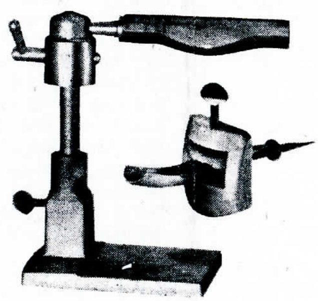
New Frank Mittermeier Gouge and Chisel Grinding Fixture



The FM tool holder and stand for sharpening gouges, chisels and V tools on the bench grinder, enables one to get the proper cutting angle — 12° to 15° — the full size — up to 1¼″ width — of the carving tool, whether they are straight or long, spoon or backbend.

Grinding fixture consisting of stand and tool holder

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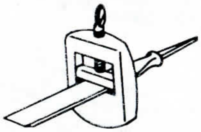

Fig. No. 1

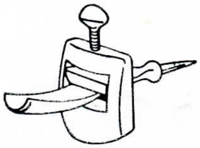

Fig. No. 2

To set up your fixture place it on the workbench with the convex curve of the cross bar approximately ¼″ from the grinding surface. For firm support clamp the base to the bench. Adjust height to about ½″ to ¾″ below the axies of the grinding wheel. For proper results it is imperative to adjust cross bar so that it is square with the grinding surface and level to the bench.

In grinding chisels and skews the straight edge of the cross bar should face you. The tool holder should face grinding surface from flat side and the tool should be placed in the holder as square and centered as possible. In the case of skew chisels set them in the holder with their cutting edge parallel to edge of grinding surface.

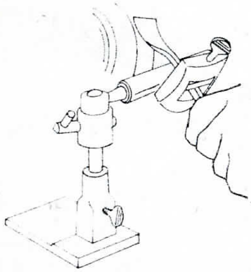

Fig. No. 3

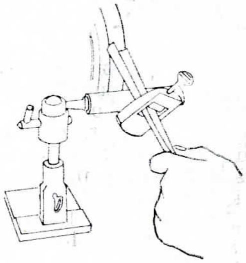

Fig. No. 4

When setting up V-tools and gouges the curved side of the tool holder should face the grinding surface with the convex curve side of the cross bar facing the operator.

All tools should be placed as square and centered as possible in the tool holder. Tools, depending on their size and shape, should extend approximately 2″ from face of the tool holder to get a cutting bevel from 12 to 15 degrees. Constant back and forth motion should be exercised in the grinding of all tools to avoid over heating and loss of hardness. Movement will result in a better sharpening job. Always have a container of water close at hand and dip tools frequently to prevent overheating. Curved cutting tools such as gouges should be moved over convex surface for uniform curve, concentric sharpening and for keeping an even bevel.

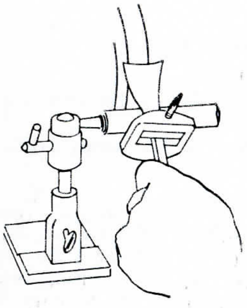

Fig. No. 5

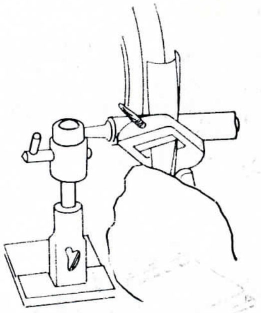

Fig. No. 6

The fixture as shipped is set for use on the left wheel of the grinder. Should the fixture be used on the right wheel, unscrew the crossbar and attach the crossbar's other end to the holder. The heavy part of crossbar's convex curve should be at the lower front side when sharpening gouges.

Fig. No. 1 Chisel, on flat side of tool holder.

Fig. No. 2 Gouge, on curved side of tool holder.

Fig. No. 3 Spoon Chisel, cutting edge square to grinding wheel.
Straight and long bent chisel same position.

Fig. No. 4, 5 and 6 Gouges in the different positions to get uniform curve and bevel.

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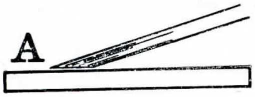
Whetting, Honing and Stropping

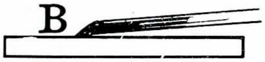
After the proper bevel (angle) and sharp cutting edge have been ground on the grinding wheel. The carving tool has to be hand whetted, honed and stropped for a keen edge.

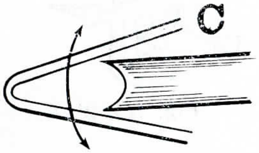
A carving tool should have two cutting bevels, outside and inside. The so called outside bevel should be ground on the grinder, the inside bevel must be hand whetted or honed.

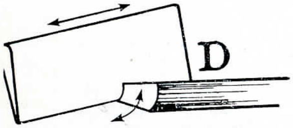
The amount of whetting to be done, depends on the sharpness of the cutting edge after grinding.

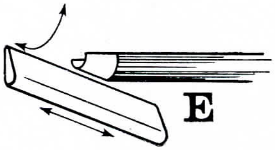
Chisels: Whet the 12° to 15° bevel in a circular or "8" shaped movement on a flat India oilstone, till a fine bur (wire edge) has turned up. The other side of the chisel with the blade almost flat, should be rubbed on the oilstone till a short bevel can be noticed. Follow with honing, hold the tool in one hand and the Arkansas oilstone in the other hand. Rub the oilstone in an up and down movement, with the pressure on the downstroke — against the cutting edge — Hone the large bevel first, then the small bevel. The bevels should be flat and the cutting edge square, do not round the corners.

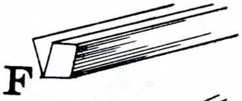


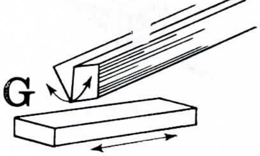


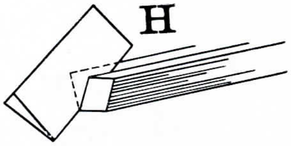












Straight Skew Chisel: Should have a 12° to 15° angle on both sides, as the tool has to cut right and left in sharp corners. Whetting and honing is the same as on the chisel, except that both angles should be equal.

Gouges: The outside bevel can be best whetted by rocking it forth and back on the inside of an India gouge slip. For the inside bevel use an India round edge slip. Stroke the oilstone up and down till a bevel has been formed all around the curve (sweep) of the tool. On gouges with the No. 9, 10 or 11 sweep, use a round or pointed oilstone, to prevent rounding the corners of the tool. For honing use a hard Arkansas round edge slip, the flat side for the outside bevel and the rounded edge for the inside. On tools with the No. 9, 10 and 11 sweep use a round or pointed Arkansas oilstone. When honing, apply the pressure on the downstroke.

V or Parting Tool: After the outside bevels have been carefully ground to be alike, the bevels should be whetted till they form a bur at the inside of the V. To form the inside bevel use a diamond or knife shaped India oilstone. By grinding and whetting the outside bevel, a sharp edge is being produced where the two sides of the bevel meet, and a small protruding point appears at the appex of the V. To prevent the tool from digging in and for smoother pushing in the wood, the sharp edge has to be rounded. The protruding point's outside corner has to be rounded till it conforms with the inner angle. For honing the outside bevels and for removing all traces of roughness at the rounded edge, use the round edge slip. For the inside bevels use a diamond or knife shaped hard Arkansas oilstone. All honing is done against the cutting edge.

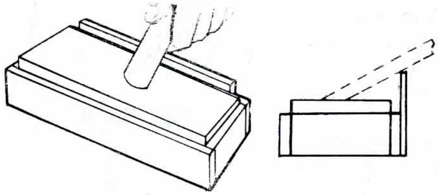
When a bur has formed, which cannot be easily removed by honing, draw the edge of the tool a few times across the corner of a woodblock or cork, that will remove the bur completely.

To prevent glazing of India and Arkansas oilstones use Pike Oil or a light oil mixed with kerosene. A few extra drops of oil on the stone is better than letting the stone get dry. Clear the oilstone frequently to avoid accumulation of the black glazing (metal particles).

All tools should be stropped before using. The tool is drawn across the strop with the cutting edge trailing, to prevent the tool from cutting into the strop.

Drawings

A) Whetting of chisel's outside bevel.
B) Whetting of chisel's inside bevel.
C) Whetting of gouge's outside bevel on the inside of gouge slip.
D) Whetting and honing of gouge's inside bevel.
E) Honing of gouge's outside bevel.
F) Protruding point on V tool.
G) Rounding of sharp edge and protruding point V tool.
H) Whetting and honing of V tool's inside edge.



If you have difficulty keeping the proper cutting angle on chisels and gouges during sharpening or honing, make a small box — with one sideboard slightly higher (see illustration) to hold a flat oilstone. Lay the beveled side of the tool flat on the oilstone, hold the tool firmly in your hand with the index finger at the outside edge of the higher sideboard. By sliding the tool for and back, you can keep the bevel at the same angle. Flat chisels, skew chisels and V tools require only straight sliding. Gouges require a pendulum movement, so that the whole sweep of the tool is equally sharpened and honed.

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